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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/704,733	11/03/2000	Susan D. Allen	FSU-1	7240

34610 7590 05/07/2004

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EXAMINER	
KAO, CHIH CHENG G	
ART UNIT	**PAPER NUMBER**
2882	

DATE MAILED: 05/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/704,733	ALLEN, SUSAN D.	
	Examiner	Art Unit	
	Chih-Cheng Glen Kao	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29 and 36-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29 and 36-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 November 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 6/21/2002, 10/31/2002, and 3/28/03 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but information referred to therein has not been considered.

Drawings

2. The proposed drawings filed 3/28/03 have been approved by the Examiner. New corrected replacement drawings reflecting the above proposed changes are now required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Objections

3. Claim 27 is objected to because of the following informality, which appears to be a minor draft error creating lack of antecedent basis problems: (claim 27, line 5, "the light"). This objection may be obviated by replacing "light" with - -photons- -. For purposes of examination, the claim has been treated as such. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3, 6, 7, 10-12, 25, 27, 28, 36-39, and 42-45 are rejected under 35 U.S.C. 102(e) as being anticipated by Lea et al. (US Patent 6367941).

5. Regarding claims 1, 25, 27, and 28, Lea et al. discloses an apparatus (Title) comprising one or more optical fibers, waveguides, or photon channeling structures (Fig. 1, #30) and one or more tap structures (Fig. 1, #18_1) formed on the one or more fibers, waveguides, or channeling structures so that the tap structures direct light or photons in predetermined directions to create an optimized desired illumination pattern (Title, and Figs. 1, 4, and 6) by scattering, diffraction, reflection, and/or refraction of portions of light or photons (Fig. 1, #42).

With regards to the taps being modeled or formed by using pattern parameters determined by modeling the desired illumination pattern, the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, these limitations have not been given patentable weight.

6. Regarding claim 3, Lea et al. further discloses the pattern generally in the shape of an arc (Fig. 7).

7. Regarding claim 6, Lea et al. further discloses one or more reflective surfaces within the one or more fibers or waveguides, wherein the reflected beam of light travels substantially opposite to the original direction of travel (Fig. 1, #42).

8. Regarding claim 7, Lea et al. further discloses one or more tap structures having an asymmetrical geometry (Fig. 3, #48_2).

9. Regarding claim 10, Lea et al. further discloses one or more tap structures in an array along the length of the one or more fibers or waveguides (Fig. 3, #48_N).

10. Regarding claim 11, Lea et al. further discloses one or more tap structures each having a length extending in a longitudinal direction larger than a width extending in a radial direction (Fig. 3, #48_2).

11. Regarding claim 12, Lea et al. further discloses one or more light sources (col. 5, lines 36-38).

12. Regarding claims 36 and 37, Lea et al. further discloses the one or more tap structures comprising a plurality of structures of a specific shape, depth, and spacing to create a desired illumination pattern (Fig. 3, #48_N).

13. Regarding claims 38, 39, and 42-45 and the taps being modeled by an iterative or theoretical process, the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, these limitations have not been given patentable weight.

14. Claims 1, 5, 10-12, 16-19, 25, 27-29, 36-39, and 42-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Mori (US Patent 4389085).

15. Regarding claims 1, 25, 27, and 28, Mori discloses an apparatus (Title) comprising one or more optical fibers, waveguides, or photon channeling structures (Fig. 7) and one or more tap structures (Fig. 7, #14a) formed on the one or more fibers, waveguides, or channeling structures so that the tap structures direct light or photons in predetermined directions to create an optimized desired illumination pattern (col. 7, lines 33-37) by scattering, diffraction, reflection, and/or refraction of portions of light or photons (Claim 1).

With regards to the taps being modeled or formed by using pattern parameters determined by modeling the desired illumination pattern, the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, these limitations have not been given patentable weight.

16. Regarding claim 5, Mori further discloses the pattern generally conical in shape (Fig. 9A, and col. 7, lines 38-48).

17. Regarding claim 10, Mori further discloses one or more tap structures in an array along the length of the one or more fibers or waveguides (Fig. 9A, R_N).

18. Regarding claim 11, Mori further discloses one or more tap structures each having a length extending in a longitudinal direction larger than a width extending in a radial direction (Fig. 7, #14a).

19. Regarding claim 12, Mori further discloses one or more light sources (Fig. 9A, #16).

20. Regarding claims 16-19 and 29, Mori further discloses incoherent light or sunlight which has visible, UV, and infrared wavelengths (Abstract, "sunlight").

21. Regarding claims 36 and 37, Mori further discloses the one or more tap structures comprising a plurality of structures of a specific shape, depth, and spacing to create a desired illumination pattern (col. 7, lines 33-37).

22. Regarding claims 38, 39, and 42-45 and the taps being modeled by an iterative or theoretical process, the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, these limitations have not been given patentable weight.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

23. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mori as applied to claim 1 above.

Mori discloses an apparatus as recited above.

However, Mori does not specifically disclose a generally spherical illumination pattern.

Mori further discloses that tap structures "may be in any suitable shapes ... depending upon the desired light diffusion or illumination effects" (col. 7, lines 33-37).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Mori with a generally spherical illumination pattern, since such a modification would have only involved a mere change in the shape of a tap structure. A change in the shape of the tap structure is generally recognized as being within the level of ordinary skill in the art (col. 7, lines 33-37) as shown by Mori. One would be motivated to incorporate a spherical pattern to distribute light to all areas that require light simultaneously (col. 8, lines 6, lines 38-45) as implied from Mori, thus only needing one point as a light source.

24. Claims 4, 8, 9, 15-17, 20-24, 26, 29, 40, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lea et al. as respectively applied to claims 1, 12, 25, and 27 above, and further in view of McGaffigan (US Patent 6031958).

25. Regarding claim 4, Lea et al. discloses an apparatus as recited above.

However, Lea et al. does not seem to specifically disclose a generally cylindrical illumination pattern.

McGaffigan teaches a generally cylindrical illumination pattern (Cover Figure).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Lea et al. with the cylindrical illumination pattern of McGaffigan, since one would be motivated to incorporate such a pattern to better see the optical effects from all angles (Cover Figure) as implied from McGaffigan.

26. Regarding claims 8, 9, and 24, Lea et al. discloses an apparatus as recited above.

However, Lea et al. does not disclose tap structures extending radially in an arc or completely circular around the fibers or waveguides.

McGaffigan teaches tap structures extending radially in an arc or completely circular around the fibers or waveguides (Fig. 4).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Lea et al. with the tap structures extending radially or completely circular around the fibers or waveguides of McGaffigan, since one would

be motivated to incorporate such an arrangement to enhance desired optical effects (col. 4, lines 34-36, and col. 3, lines 65-67) as implied from McGaffigan.

27. Regarding claims 15 and 20-23, Lea et al. discloses an apparatus as recited above.

However, Lea et al. does not seem to specifically disclose a semiconductor laser, which is coherent, or light emitting diode.

McGaffigan teaches a laser (Claim 8), which is coherent, or light emitting (Claim 7) diode.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Lea et al. with the laser diode of McGaffigan, since one would be motivated to incorporate such a light source to better see the optical effects (Fig. 14A) in an extremely small system (col. 12, lines 60-63) as implied from McGaffigan.

It would also have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the suggested apparatus of Lea et al. in view of McGaffigan with a semiconductor diode, since it would have been within general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. One would be motivated to incorporate semiconductor material for its ease of making small devices.

28. Regarding claims 16, 17, and 29, Lea et al. discloses an apparatus as recited above.

However, Lea et al. does not seem to specifically disclose incoherent visible light.

McGaffigan teaches incoherent (Fig. 8, #81) visible light (col. 7, lines 12-18).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Lea et al. with the incoherent visible light of McGaffigan, since one would be motivated to incorporate such a light source to better see the optical effects (Fig. 14A) as implied from McGaffigan.

29. Regarding claim 26, Lea et al. in view of McGaffigan suggests an apparatus as recited above.

However, Lea et al. does not seem to specifically disclose 90% or higher light output.

Lea et al. (Fig. 3, #43) and McGaffigan (Fig. 18A, #262, and Fig. 22) teach desiring higher light output.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the apparatus of Lea et al. with 90% or higher output, since wherein the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges only involves routine skill in the art. For example, if the optical fiber were extremely long and bent at angles such as those seen in McGaffigan (Fig. 38, #785), the percentage of light not hitting one of the tap structures would be extremely low, thus producing a light output higher than 90 percent. One would be motivated to modify the apparatus to emit 90% or higher output to ensure that the illumination is bright enough to see.

30. Regarding claims 40 and 41 and the taps being modeled by an iterative or theoretical process, the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, these limitations have not been given patentable weight.

31. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lea et al. as applied to claim 12 above, and further in view of Currie (US Patent 5465194).

Lea et al. discloses an apparatus as recited above.

However, Lea et al. does not disclose a light source selectively controllable having varying illumination powers.

Currie teaches a light source selectively controllable having varying illumination powers (col. 3, lines 56-67).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Lea et al. with the selectively controllable light source of Currie, since one would be motivated to incorporate this to provide a means for better signifying different conditions (col. 3, lines 56-67) as implied from Currie.

32. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lea et al. as applied to claim 12 above, and further in view of Pollack (US Patent 4935722).

Lea et al. discloses an apparatus as recited above.

However, Lea et al. does not disclose infrared light.

Pollack teaches infrared light (Abstract).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Lea et al. with the infrared light of Pollack, since one would be motivated to incorporate this to provide a means to better signal someone with red

light while using a transparent medium that does not obscure the user's vision (col. 1, lines 40-55) as shown by Pollack.

Response to Arguments

33. The objections to the specification and claims made in the 6/19/03 Office Action have been withdrawn in light of the 12/18/03 amendment.

34. Applicant's arguments with respect to claims 1-29 and 36-45 have been considered but are moot in view of the new ground(s) of rejection.

35. Applicant's arguments filed 12/18/03 have been fully considered, but they are not persuasive.

Regarding MPEP 2113 and the modeled tap structures, the Examiner has considered the structure implied by the process steps. The tap structures of the claimed product appear to be the same or similar to that of the prior art with no unobvious difference.

Regarding McGaffigan and Mori, McGaffigan and Mori are still cited for its disclosure or teaching of an optical fiber with tap structures as recited above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gk

DAVID V. BRUCE
PRIMARY EXAMINER